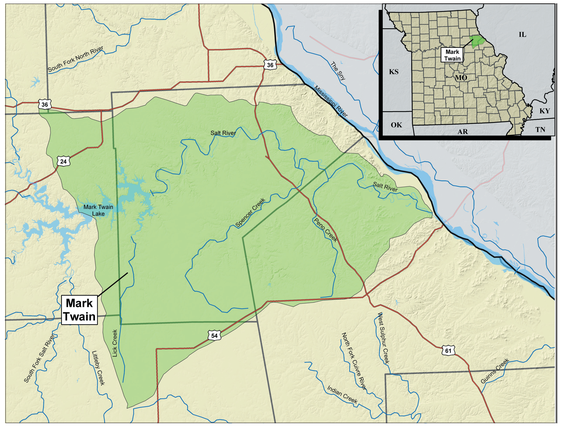
United States Department of Agriculture

Conservation Effects Assessment Project (CEAP)

Salt River/Mark Twain Watershed, Missouri: 2004-2009

An ARS* Benchmark Research Watershed, one of 24 CEAP watershed projects.



CEAP Assessment

Evaluate water and soil quality effects of best management practices (BMPs) for herbicide, nutrient, and sediment contamination.

Watershed Description

- 1,611,500 acres (Salt River Basin)
- Predominantly agricultural
- A Total Maximum Daily Load (TMDL) has been set for allowable levels of sediment.
- Watershed is a participant in the Clean Water Act Section 319 Nonpoint Source Pollution Program.

Issues: Runoff from farms, growing beef and swine feedlots, carries excess nutrients, pathogens, sediment, and herbicides to Mark Twain Lake. Mark Twain Lake is the drinking water reservoir for about 40,000 people.

*Agricultural Research Service

Approach

Water sampling: Pesticides, phosphorus, nitrate-nitrogen, sediment, and pathogens from livestock manure

Watershed models: SWAT (Soil and Water Assessment Tool)

Research: Effectiveness, economics of various BMPs and weed management methods.

Communicating Results

Three annual progress reports planned. Also, new or re-designed BMPs, decision support system based on SWAT data, recommendations by crop for entire Salt River basin, and journal articles.

Collaborators

- USDA, Natural Resources Conservation Service
- Food and Agricultural Policy Research Institute
- Environmental Resources Coalition
- Missouri Corn Growers Association

Contacts

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NRCS State Conservationist
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Aerial photograph of Mark Twain Lake watershed, showing riparian corridors, grassed waterways, and the within-field spatial variation that is common to the area.

Student summer intern confirms programming of a sampler that collects runoff from a 65' x 660' plot to test nutrient and herbicide loss from conventional and reduced-tillage cropping systems for corn.

Runoff from 80-acre field watershed after storm. The weir allows calculation of flow rate from height measurements, and samplers nearby collect samples for nutrient and herbicide analyses.

Timeline

2003
Initial funding

2004
August CEAP bibliographies

2005
May Wetlands peer review
July Wildlife literature review (program-based)
October Cropland literature reviews
Wildlife literature review (practice-based)
Wildlife Work Plan
November Wetlands Work Plan
December Draft findings—Prairie Pothole region
1st ARS Benchmark Watersheds progress report

2006
February Preliminary habitat quality models—Prairie Potholes wetland region
March Preliminary National Assessment Report
December 2nd ARS Benchmark Watersheds progress report

2007
Fall National Assessment Final Report
December 3rd ARS Benchmark Watersheds progress report

2008
December 4th ARS Benchmark Watersheds progress report

www.nrcs.usda.gov/technical/nri/ceap/